

ABSTRACT OF THE DISCLOSURE

The invention concerns a miniature confocal optical head (4) for a confocal imaging system, in particular endoscopic, said head comprising a point source (2a) for producing a light beam (13); a ball lens (12) arranged at the tip of the optical head, partly outside, to cause said light beam to converge in an excitation point (19) located in a subsurface field under observation (14) of a sample (15), the digital aperture of said lens and the dimension of the point source being adapted to ensure confocality of the assembly; and scanning means (10, 211, 22) for rotating the point source so that the excitation point (19) scans said field under observation. The inventive system produces a real-time confocal image (about 10 images/sec.) of very high quality and homogeneous in the entire field (the optical aberrations are constant in the entire field due to the spherical symmetry of the ball lens), and this is achieved through a miniature head.